## IN THE CLAIMS:

- 1. (Original) An immunogenic composition comprising: a means for providing protection to an animal against a pathogen of *Yersinia* origin; and a pharmaceutically suitable excipient.
- 2. (Original) The immunogenic composition of claim 1, further comprising LcrV, the F1 antigen, YopD, an attenuated *Yersinia* bacterium, a recombinant carrier bacterium including a nucleic acid encoding a YscF protein, an inactive or killed *Yersinia* bacterium or combinations thereof.
  - 3. (Original) The immunogenic composition of claim 1, further comprising an adjuvant.
- 4. (Original) The immunogenic composition of claim 1, further comprising PrgI, MxiH, EscF or combinations thereof.
- 5. (Original) The immunogenic composition of claim 1, wherein the pathogen is *Yersinia pestis*.
- 6. (Original) The immunogenic composition of claim 1, wherein the means for providing protection comprises an isolated or recombinant YscF protein.
- 7. (Original) A health program for immunizing subjects in a population or a sub-population against *Yersinia* infections, said health program comprising: administering the immunogenic composition of claim 1 to at least some of the subjects of the population or the sub-population.
- 8. (Original) The immunogenic composition of claim 1, wherein the means for providing protection to an animal against a pathogen of *Yersinia* origin is a His-tagged YscF protein.

- 9. (Original) An immunogenic composition for providing protection to an animal against a pathogen of *Yersinia* origin comprising: a recombinant YscF protein or a protective epitope thereof; and a pharmaceutically suitable excipient.
- 10. (Original) The immunogenic composition of claim 9, further comprising LcrV, the F1 antigen, YopD, an attenuated *Yersinia* bacterium, a recombinant carrier bacterium including a nucleic acid encoding a YscF protein, an inactive or killed *Yersinia* bacterium or combinations thereof.
- 11. (Original) The immunogenic composition of claim 9, further comprising an adjuvant.
- 12. (Original) The immunogenic composition of claim 9, further comprising PrgI, MxiH, EscF or mixtures thereof.
- 13. (Original) The immunogenic composition of claim 9, wherein the recombinant YscF comprises His-tagged YscF.
- 14. (Original) A health program for immunizing subjects in a population or a sub-population against *Yersinia* infections, said health program comprising: administering the immunogenic composition of claim 9 to at least some of the subjects of the population or the sub-population.
- 15. (Original) A composition produced by a process, the process comprising:

  providing an expression vector including a nucleotide sequence encoding a YscF protein capable of providing protection to an animal against a pathogen of *Yersinia* origin; expressing the nucleotide sequence to produce the YscF protein; collecting the YscF protein; and mixing the YscF protein with a suitable excipient.

- 16. (Original) The composition produced by the process of claim 15, where the YscF protein is His-tagged YscF of SEQ ID NO: 12.
- 17. (Original) The composition produced by the process of claim 15, further comprising mixing LcrV, the F1 antigen, YopD or combinations thereof with the suitable excipient.
- 18. (Original) The composition produced by the process of claim 15, further comprising mixing an adjuvant with the suitable excipient.
- 19. (Original) The composition produced by the process of claim 15, further comprising mixing PrgI, MxiH, EscF or combinations thereof with the suitable excipient.
- 20. (Original) An isolated or recombinant YscF protein capable of providing protection to an animal against a pathogen of *Yersinia* origin.
- 21. (Original) The isolated or recombinant YscF protein of claim 20, wherein the isolated or recombinant YscF protein is encoded by a nucleotide sequence selected from the group of nucleotide sequences consisting of SEQ ID NO: 11 and SEQ ID NO: 13.
  - 22. (Original) A His-tagged YscF protein.
- 23. (Original) The His-tagged YscF protein of claim 22, wherein the peptide sequence is SEQ ID NO: 12.
- 24. (Original) An isolated or recombinant nucleic acid molecule encoding a YscF protein capable of providing protection to an animal against a pathogen of *Yersinia* origin.
- 25. (Original) The isolated or recombinant nucleic acid of claim 24, wherein an amino acid sequence of the isolated or recombinant protein is SEQ ID NO: 12.

- 26. (Original) An isolated or recombinant nucleic acid capable of hybridizing to the isolated or recombinant nucleic acid molecule of claim 24 under stringent conditions.
- 27. (Original) A cell transformed with the isolated or recombinant nucleic acid of claim 24.
- 28. (Original) The cell of claim 27, further comprising a promoter operatively linked to the isolated or recombinant nucleic acid sequence.
- 29. (Original) A process for producing antibodies capable of binding a YscF protein capable of providing protection to an animal against a pathogen of *Yersinia* origin, said process comprising:

providing an expression vector including a nucleotide sequence encoding the YscF protein; expressing the nucleotide sequence to produce the YscF protein; collecting the YscF protein;

mixing the collected YscF protein with a suitable excipient; and administering the YscF protein to a subject, thus generating antibodies against the YscF protein

- 30. (Original) The process according to claim 29, further comprising attaching an affinity marker to the YscF.
- 31. (Original) The process according to claim 29, wherein the affinity marker is a Histag.
- 32. (Original) A process for vaccinating a subject comprising: administering a means capable of providing protection to an animal against a pathogen of *Yersinia* origin to the subject in an amount sufficient to elicit an immune response.
- 33. (Original) The process according to claim 32, further comprising mixing the YscF protein with a pharmaceutically acceptable excipient.

- 34. (Original) The process according to claim 32, wherein the pathogen is Yersinia pestis.
- 35. (Original) The process according to claim 32, wherein the YscF protein is Histagged.
  - 36. (Original) An antibody produced by the process according to claim 32.
- 37. (Original) The process according to claim 32, further comprising administering LcrV, the F1 antigen, YopD, an attenuated *Yersinia* bacterium, a recombinant carrier bacterium including a nucleic acid encoding a YscF protein, an inactive or killed *Yersinia* bacterium or combinations thereof to the subject in amount sufficient to elicit an immune response.
- 38. (New) The immunogenic composition of claim 1, wherein the pathogen is selected from the group consisting of all of the members of the genus *Yersinia*.
- 39. (New) The immunogenic composition of claim 38, wherein the pathogen is selected from the group consisting of Y. pestis, Y. pseudotuberculosis, and Y. enterocolitica.
- 40. (New) The isolated or recombinant YscF protein of claim 20, wherein the isolated or recombinant YscF protein is encoded by a nucleotide sequence having homology to SEQ ID NO: 1.
- 41. (New) An isolated antibody capable of binding the isolated or recombinant YscF protein of claim 20.
- 42. (New) The isolated or recombinant nucleic acid molecule of claim 24, comprising SEQ ID NO: 1.

- 43. (New) A method for producing an immunogenic substance, the method comprising: providing an expression vector including a nucleotide sequence encoding a YscF protein capable of conferring protection to an animal as determined by calculating a LD50 value after immunizing a mammal against a pathogen of *Yersinia* origin; and expressing the nucleotide sequence to produce the YscF protein.
- 44. (New) The method according to claim 43, wherein the YscF protein is encoded by a nucleotide sequence having homology to SEQ ID NO: 1.
- 45. (New) A method for detecting an antibody capable of binding a YscF protein, the method comprising:
  obtaining a biological sample from a subject;
  placing the biological sample in contact with an isolated or recombinant YscF protein; and determining whether an antibody from the biological sample binds to the isolated or recombinant YscF protein.
- 46. (New) A kit for performing the method of claim 45, the kit comprising: the isolated or recombinant YscF protein; and means for detecting binding between the isolated or recombinant YscF protein and the antibody capable of binding the YscF protein.
- 47. (New) A method for detecting a YscF protein, the method comprising:
  obtaining a biological sample from a subject;
  placing the biological sample in contact with an isolated antibody capable of binding the YscF protein; and
  determining whether the isolated antibody binds the YscF protein.
- 48. (New) A kit for performing the method of claim 47, the kit comprising: the isolated antibody capable of binding the YscF protein; and means for determining whether the isolated antibody binds the YscF protein.

## **CONCLUSION**

The application is to be amended as set forth herein. All amendments are made without prejudice or disclaimer. Examination of the application is requested.

Respectfully submitted,

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